

Ultrasonographic Features of Right Dorsal Colitis in the Horse

Investigator: Samuel L. Jones, DVM, PhD

Right dorsal colitis (RDC) is a life threatening ulcerative inflammatory condition of the colon. The condition is most often seen in horses being treated with non-steroidal anti-inflammatory drugs such as phenylbutazone or flunixin meglumine for another medical problem (such as lameness or endotoxemia). Horses that are dehydrated, are endotoxemic, or have pre-existing conditions of the colon are particularly susceptible to right dorsal colitis if they are being treated with NSAIDs. Thus, horses that are hospitalized for colic are particularly at risk of developing RDC. The inflammation of the colon characterizing RDC causes diarrhea, protein-losing enteropathy, edema from hypoproteinemia, colic, and weight loss. Infarction of the affected segment may occur. Stricture formation may result in chronic cases, necessitating surgical bypass of the right dorsal colon. In spite of the fact that RDC is a well recognized clinical syndrome, diagnosis is difficult and often requires surgical exploration of the abdomen. A reliable diagnostic test is needed to allow early identification of horses with RDC, non-invasive diagnosis of the condition, and a means of monitoring response to therapy.

Clinical Signs of RDC:

- Colic
- Diarrhea
- Edema
- Poor appetite
- Weight loss

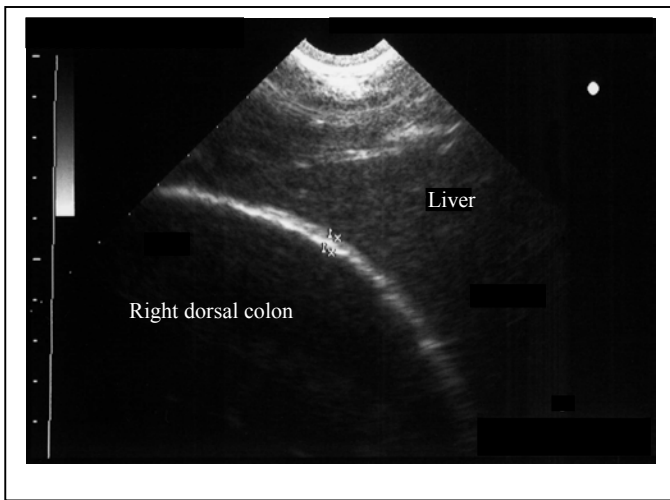
The purpose of this investigation was to test the hypothesis that ultrasonographic examination of the right dorsal colon is a reliable test for diagnosis of RDC.

Description of the technique:

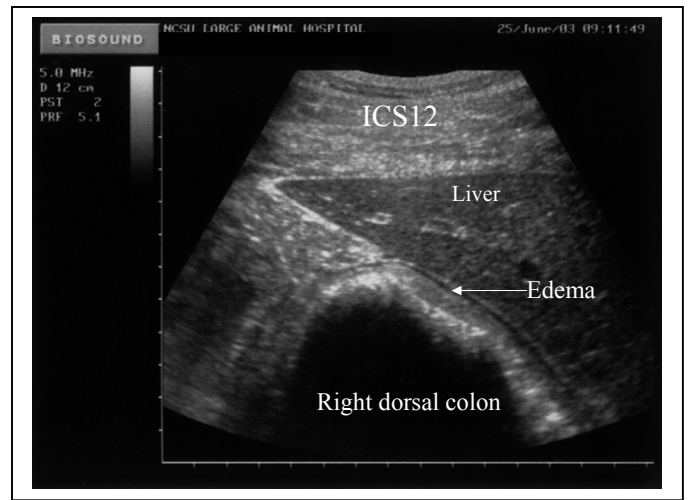
- The hair was clipped on the trunk from the 9th-17th intercostal spaces from a horizontal line at the level of the shoulder to a diagonal line at the approximate ventral border of the lung field. An ultrasonographic transducing gel was applied.
- An ultrasonographic image was obtained with either a curvilinear transducer operating at 5 MHz or 3.5 MHz or a 3.5 MHz sector scanning transducer, depending on the size of the horse and the image quality.
- Ultrasonographic images were obtained using a linear/sector scanner by starting at the ventral border of the lung and scanning in a dorsal to ventral plane at the 10-15th intercostal spaces.
- The peripheral wall of the right dorsal colon was identified lying immediately axial and ventral to the liver, ventral to the duodenum, and dorsal to the right ventral colon.
- The right dorsal colon could be distinguished from the right ventral colon by the lack of haustra.

Ultrasonographic images of the equine right dorsal colon

Normal Horse



Horse with RDC

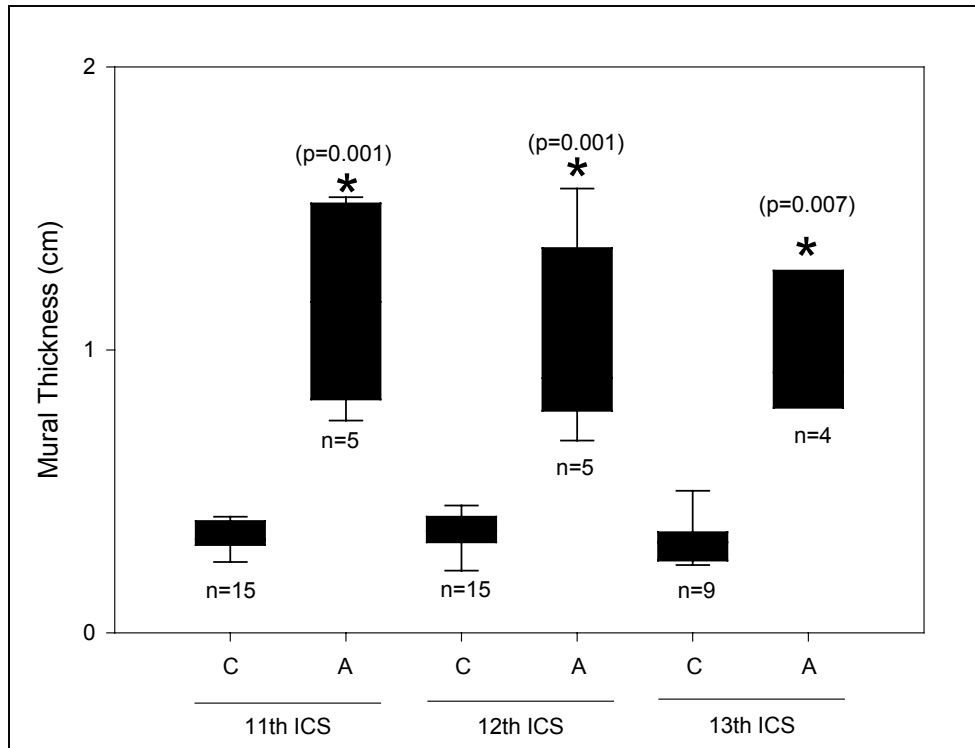


The results of this investigation are published [Jones SI, Davis JL, Rowlingson KA (2003) Ultrasonographic findings in horses with right dorsal colitis: 5 cases (2000-2001). J Am Vet Med Assoc 222:1248-1251].

In summary:

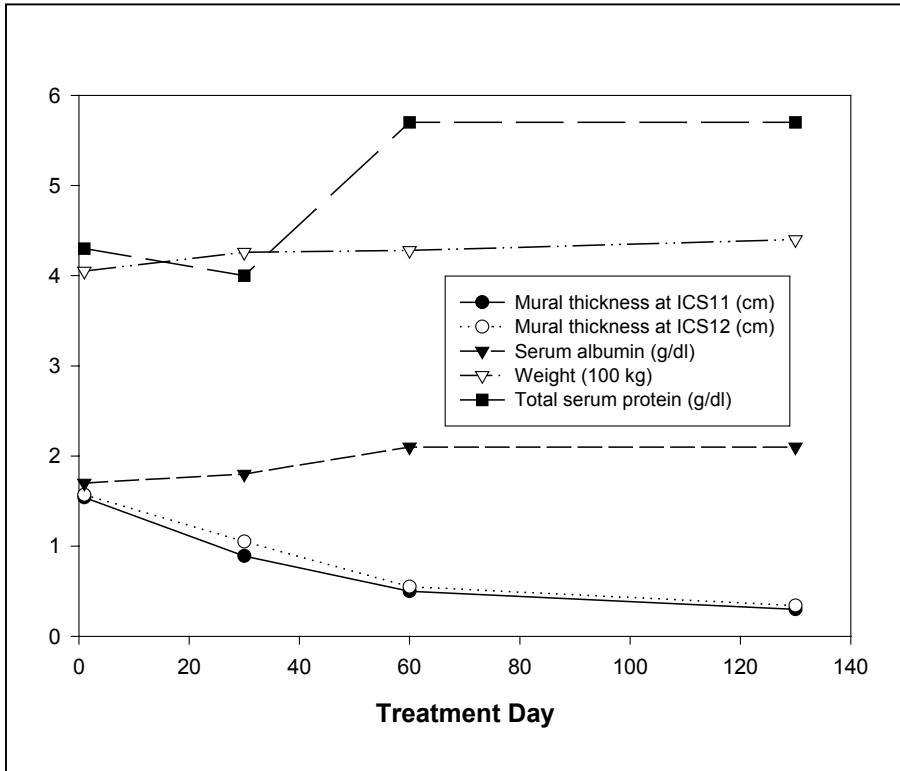
- The right dorsal colon could be imaged most consistently at the right 11th, 12th, and 13th ICS below the margin of the lung and axial to the liver.
- The mural thickness measured from ultrasonographic images was significantly greater in horses with right dorsal colitis than in normal horses.
- The right dorsal colon in affected horses had a prominent hypoechoic layer associated with submucosal edema and inflammatory infiltrates.
- Successful treatment of one horse with right dorsal colitis was associated with a decrease in mural thickness coincident with an increase in serum albumin and total protein concentrations and weight gain.
- A decrease in mural thickness was also observed in a second horse treated for right dorsal colitis that was not associated with healing of the right dorsal colon or an increase in serum albumin concentration, but rather a thinning of a segment of the right dorsal colon that eventually ruptured.

Right dorsal colon measurements from normal horses and horses with RDC



Right dorsal colon mural thickness measured using ultrasonographic images obtained from normal control (C) horses and horses affected with right dorsal colitis (A). Mural thickness was determined using ultrasonographic images obtained at intercostal spaces (ICS) 11, 12, and 13. The median mural thickness was statistically greater in horses with right dorsal colitis than in normal control horses at each ICS measured (denoted by *). The box indicates the interquartile range and the bars indicate the standard deviation from the mean. The p value for the statistical comparison between control horses and affected horses at each ICS is shown in parentheses and n is the number of measurements at each ICS.

The thickness of the right dorsal colon during treatment



The relationship between weight (in hundreds of kg), total serum protein concentration, serum albumin concentration, and right dorsal colon mural thickness in a horse successfully treated for right dorsal colitis.